

CLAIMS:

1. An apparatus for inspecting particles or defects comprising:

illuminating means for irradiating light to an object under inspection;

light detecting means for detecting reflected light or scattered light from the object under inspection;

detecting means for detecting particles or defects based on a signal detected by said light detecting means;

dimension measuring means for processing the signal detected by said light detecting means to measure a size of each particle or defect;

data processing means for processing an inspection result; and

display means for displaying information on the inspection result,

wherein said data processing means relates a particle or defect size to a cause of failure to estimate a cause of failure from statistical processing on the inspection result, and said display means displays information on the estimated cause of failure.

2. An inspection apparatus according to claim 1, wherein said display means displays a distribution of frequencies for particle or defect sizes measured by said dimension measuring means.

3. An inspection apparatus according to claim 1,

wherein said display means displays particles or defects having a particular size in a manner discriminative from the remaining particles or defects.

4. An inspection apparatus according to claim 1, wherein said data processing means performs a failure analysis by generating management information for each of regions on the object under inspection, comparing the management information with sizes of particles or defects detected from said each region to evaluate whether each of the regions on the object under inspection is non-defective or defective in quality.

5. An inspection apparatus according to claim 4, wherein said display means displays particles or defects having a particular size in each of the regions in a manner discriminative from the remaining particles or defects based on an evaluation result.

6. An inspection apparatus according to claim 1, wherein said display means displays the distribution of frequencies for particle or defect sizes measured by said dimension measuring means for each of the regions on the object under inspection.

7. An inspection apparatus according to claim 1, wherein said data processing means matches the particle or defect sizes measured by said dimension measuring means with information on pass/fail of the object under inspection acquired by an electric inspection to calculate an influence of the particles or the defects on a yield, and said display means displays a calcula-

tion result.

8. An inspection apparatus according to claim 1, wherein said dimension measuring means uses an integral of a signal value detected by said light detecting means.

9. An inspection apparatus according to claim 1, wherein said dimension measuring means uses a maximum of s signal value detected by said light detecting means.

10. An inspection apparatus according to claim 1, wherein said illuminating means illuminates white light to the object under inspection.

11. A method of inspecting particles or defects, comprising the steps of:

irradiating an object under inspection with light;

detecting reflected light or scattered light from the object under inspection;

detecting particles or defects based on a signal indicative of detected reflected light or scattered light;

processing the signal indicative of detected reflected light or scattered light to measure a size of each particle or defect;

processing data including the signal indicative of detected reflected light or scattered light, and a result of measuring the size of each particle or defect; and

displaying the result of data processing,  
wherein said step of processing data includes  
estimating a cause of failure, and said step of display  
includes displaying information on an inspection  
result.

12. A method of inspecting particles or defects according to claim 11, wherein said step of displaying includes displaying a distribution of frequencies for particle or defect sizes measured by said step of measuring.

13. A method of inspecting particles or defects according to claim 11, wherein said step of displaying includes displaying particles or defects having a particular size in a manner discriminative from the remaining particles or defects.

14. A method of inspecting particles or defects comprising the steps of:

irradiating an object under inspection with  
light;

detecting reflected light or scattered light  
from the object under inspection;

detecting particles or defects based on a  
signal indicative of detected reflected light or  
scattered light;

processing the signal indicative of detected reflected light or scattered light to measure a size of each particle or defect;

processing data including the signal

indicative of detected reflected light or scattered light, and a result of measuring the size of each particle or defect; and

displaying the result of data processing,

wherein said step of processing data includes dividing the object under inspection into several regions, and processing data for each of the regions.

15. A method of inspecting particles or defects according to claim 14, wherein said step of displaying includes displaying particles or defects having a particular size in a manner discriminative from the remaining particles or defects for each of the regions.

16. A method of inspecting particles or defects according to claim 14, wherein said step of displaying includes displaying a distribution of frequencies for the particle or defect sizes in each of the regions.

17. A method of inspecting particles or defects comprising the steps of:

irradiating an object under inspection with light;

detecting reflected light or scattered light from the object under inspection;

detecting particles or defects based on a signal indicative of detected reflected light or scattered light;

processing the signal indicative of detected reflected light or scattered light to measure a size of each particle or defect;

processing data including the signal indicative of detected reflected light or scattered light, and a result of measuring the size of each particle or defect; and

displaying the result of data processing,

wherein said step of processing data includes matching information on the sizes of the particles or the defects with information on pass/fail of the object under inspection acquired by separately performing an electric inspection on the object under inspection to calculate an influence of the particles or the defects on a yield, and said step of displaying includes displaying a calculation result.

18. A method of inspecting particles or defects according to claim 17, wherein said step of irradiating includes irradiating white light to the object under inspection.

19. A method of inspecting particles or defects according to claim 17, wherein said step of measuring a size of each particle or defect includes calculating the size of each particle or defect using an integral of a signal value generated by detecting the particle or the defect.

20. A method of inspecting particles or defects according to claim 17, wherein said step of measuring a size of each particle or defect includes calculating the size of each particle or defect using a maximum of a signal value generated by detecting the particle or

the defect.

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